

OVERHEAD LCD MONITOR IN COMBINATION WITH A DVD PLAYER FOR A VEHICLE

BACKGROUND OF THE INVENTION

4 1. Field of the Invention

5 The present invention relates to an overhead monitor in combination with a
6 DVD player for a vehicle, and more particularly to an overhead monitor having a DVD
7 player securely received inside the monitor so as to be compact for storage.

8 2. Description of Related Art

9 In order to enjoy high quality images, most auto-drivers have a liquid crystal
10 display (LCD) mounted onboard. The LCD normally is held on the ceiling of the car so
11 that passengers are able to watch their favorite movies while they are onboard. However,
12 when the user wants to watch a different DVD (digital video disk) from one that has just
13 been shown, the passengers will have to actually go to another place in the car to have
14 the access to the DVD that is being played. To save trouble for the user moving around
15 in a moving car which can impair the steering of the car and the cost which arises from
16 the wires necessary to transmit signals, a monitor in combination with a DVD player is
17 invented and introduced to the market. This kind of displaying unit saves a lot of trouble
18 for the user because there is no need for extra wires to transmit signals from the DVD
19 player to the monitor. However, the DVD player is mounted in a recess in the monitor
20 after the monitor is installed on the ceiling. Therefore, manual effort is still necessary to
21 install the DVD player in the monitor. Moreover, the signal wires are still required for
22 the monitor and the DVD player respectively. That is, though the entire length of the
23 signal wires is reduced, the signal wires are provided respectively to the monitor and the
24 DVD player. Thus, cost for such a structure is still high.

1 To overcome the shortcomings, the present invention tends to provide an
2 improved overhead monitor in combination with a DVD player which shares the same
3 printed circuit board (PCB) with the monitor to mitigate and obviate the aforementioned
4 problems.

5 **SUMMARY OF THE INVENTION**

6 The primary objective of the present invention is to provide an overhead
7 monitor in combination with a DVD player. The DVD player shares with the monitor a
8 printed circuit board so that there are no signal wires needed to communicate the DVD
9 player with the monitor.

10 Another objective of the present invention is to provide an overhead monitor in
11 combination with a DVD player. The combination is compact in size and has high
12 quality image due to the elimination of transforming signals from analog to digital
13 between the monitor and the DVD player and vice versa.

14 Still another objective of the present invention is to provide a safety device
15 inside the DVD player so that only when the cover of the DVD player is closed, can the
16 DVD player be operated.

17 In order to accomplish the foregoing objective, the combination of the monitor
18 and the DVD player has a fixed plate with a DVD player embedded therein and a
19 moving plate pivotally connected to the fixed plate and having a monitor received
20 therein. The fixed plate further has a concave area with a depth equal to a thickness of
21 the combination of the moving plate and the monitor, so that when the combination of
22 the moving plate and the monitor pivots relative to the fixed plate and received in the
23 recessed area, a purpose of compact size is achieved.

24 Other objects, advantages and novel features of the invention will become more

1 apparent from the following detailed description when taken in conjunction with the
2 accompanying drawings.

3 **BRIEF DESCRIPTION OF THE DRAWINGS**

4 Fig. 1 is a perspective view of the combination of the monitor and the DVD
5 player;

6 Fig. 2 is a perspective view of the monitor in combination with the DVD player
7 shown in Fig. 1, wherein the cap of the DVD player is open for easy illustration;

8 Fig. 3 is a side plan view in partial section showing a safety device mounted in
9 the combination of the monitor and the DVD player;

10 Fig. 4 is a side plan view in partial section showing the safety device is in
11 engagement to allow the DVD player to operate;

12 Fig. 5 is a side plan view showing that when the monitor is in engagement with
13 the DVD player, a protective cap is lowered to protect the transmission device; and

14 Fig. 6 is a side plan view showing that when the monitor is in disengagement
15 with the DVD player, the protective cap is simultaneously raised to allow the pivotal
16 movement of the moving plate.

17 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

18 With reference to Figs. 1 and 2, the combination of the monitor and the DVD
19 player constructed in accordance with the present invention has a fixed plate (10)
20 adapted to be mounted in the ceiling of a car and provided with a DVD player (30)
21 embedded therein and a moving plate (20) pivotally connected to the fixed plate (10)
22 and having an LCD monitor (21) received therein. The fixed plate (10) further has a
23 recessed area (11) defined to securely receive therein the DVD player (30). The fixed
24 plate (10) is further provided with a concave area (12) and the recessed area (11) is

1 defined in a bottom defining the concave area (12). The concave area (12) has a depth
2 equal to a thickness of the combination of the moving plate (20) and the monitor (21), so
3 that when the combination of the moving plate (20) and the monitor (21) pivots relative
4 to the fixed plate (10) and is received in the recessed area (11), as shown in Fig. 5, a
5 purpose of compact size is achieved.

6 The DVD player (30) shares the same printed circuit board (not shown) with the
7 monitor (21), but as the circuit connecting from the printed circuit board to the DVD
8 player (30) and the monitor (21) is conventional in the art and is not the focus of the
9 present invention, detailed description thereof is this omitted.

10 With reference to Figs. 3 and 4, the DVD player (30) has a cover (31) pivotally
11 connected to a body of the DVD player (30) and provided with a wedge (32) and an
12 extension (33) formed on a bottom face of the cover (31). In contrast to the wedge (32)
13 and the extension (33) and at the bottom face defining the concave area (12), a clamp
14 (121) and a hole (120) are respectively formed to correspond to the wedge (32) and the
15 extension (33). Moreover, a sensor (122) is mounted on a bottom of the fixed plate (10)
16 to correspond to the hole (120). It is noted that only when the cover (31) is closed and
17 the extension (33) extends into the hole (120) to engage the sensor (122), can the DVD
18 player (30) be operated. In order to maintain the cover (31) in a closed status, the clamp
19 (121) is able to secure the wedge (32) so that even if a sudden bump occurs when the
20 DVD player (30) is operated, the DVD player (30) can still operate normally.

21 With reference to Figs. 5 and 6, it is noted that a gap (13) defined at the joint
22 between the fixed plate (10) and the moving plate (20) is provided to receive a
23 transmission device (not numbered and shown in phantom line). Therefore, to protect
24 the transmission device, a protective cap (14) is pivotally connected to an end side of the

1 fixed plate (10). When the moving plate (20) pivots away from the fixed plate (10), the
2 protective cap (14) will simultaneously pivot along the moving plate (20). However,
3 when the moving plate (20) pivots toward the fixed plate (10), the protective cap (14)
4 will also simultaneously pivot to cover the gap (13) so as to cover the transmission
5 device which is used to provide the pivotal movement to the moving plate (20) with
6 respect to the fixed plate (10).

7 It is to be understood, however, that even though numerous characteristics and
8 advantages of the present invention have been set forth in the foregoing description,
9 together with details of the structure and function of the invention, the disclosure is
10 illustrative only, and changes may be made in detail, especially in matters of shape, size,
11 and arrangement of parts within the principles of the invention to the full extent
12 indicated by the broad general meaning of the terms in which the appended claims are
13 expressed.